



## CALCIUM SULFONATE PRIMER FOR STEEL MSP-00-05A

**1.0 Description.** This specification covers calcium sulfonate primer for steel. This primer is primarily intended for use in non-abrasion exposures to provide a firm, corrosion resistant, highly adherent film. It is suitable as a primer for in-place structures, but not as a shop-applied primer.

**2.0 Composition.** The primary resin used to manufacture the calcium sulfonate primer shall be a modified overbased crystalline calcium sulfonate that creates a highly polar complex capable of protecting the underlying steel from corrosion. In addition to the calcium sulfonate complex, the paint shall also contain film forming oleoresinous compounds that act to reduce tack in the dry film.

**3.0 Properties.** The mixed coating properties shall be as follows:

Item	Requirement
Color	red iron oxide
Modified Crystalline Overbased Calcium Sulfonate, percent by weight, min.	15
Coarse Particles and Skins as retained on No. 325 (45µm) mesh sieve, percent, max.	1.0
Viscosity, 77 F (25 C), KU	90 – 120
Volatile Organic Content (VOC), lbs/gal (g/L), max.	3.50 (420)
Fineness of Grind, Hegman Units, min.	5
Drying Time, Hours (3 to 4 Mil (75 µm to 100 µm) Dry Film)	
Dust Dry	1 – 4
Tack Free	5 – 12
Dry Firm	24 – 48
Sag Resistance, Mils (µm)	12+ (300+)
Salt Spray Resistance, 1500 hours (4 mil (100 µm) dry film over SSP-SP-5 blasted cold rolled steel – 1 to 2 mil (25 µm to 50 µm) profile)	No more than 1 percent under-cutting, blistering or peeling.

**3.1 Pigment Settlement.** The paint shall show perfect suspension (10 rating) when tested as specified in ASTM D 869, when stored for six months.

**3.2 Working Properties.** The paint shall be uniform and easily spray-applied when tested in accordance with Federal Standard No.141, Method 4331. The primer and topcoat shall show no streaking, running or sagging after drying.

**3.3 Storage.** The paint shall show no thickening, curdling, gelling, or hard caking when tested as specified in Federal Standard No.141, Method 3011 after storage for six months from date of delivery in tightly covered containers at a temperature of not less than 50 F or more than 110 F (less than 10 C or more than 43 C).

**4.0 Test Methods.** The test methods used to verify compliance with the properties specified shall be as follows:

<b>American Standards for Testing and Materials (ASTM)</b>	
B117	Salt Spray (Fog) Testing
D562	Consistency of Paints Using the Stormer Viscometer
D1210	Fineness of Dispersion of Pigment-Vehicle Systems
D3278	Flash Point of Liquids by Seta Flash Closed Tester
D3960	Volatile Organic Content (VOC) of Paints

<b>Federal Test Method Standard No. 141</b>	
Method 4061	Drying Time
Method 4494	Sag Test (multi-notch blade)

**5.0 Marking.** All containers shall be legibly marked with the following information:

Name:

Specification:

Color:

Lot Number:

Date of Manufacture:

Quantity of Paint in Container:

Information and Warnings as may be required by Federal and State Laws.

Manufacturer's Name and Address:

## **6.0 Application.**

**6.1** This paint is intended for use as a primer over properly prepared steel and as a tie coat between compatible highly adherent existing coatings and refinishes. The primer is to be applied over an SSPC-SP2, SSPC-SP3, or SSPC-SP6 surface preparation, including removal of all rust scale, loose rust, loose mill scale, and loose or non-adherent paint. Oil and grease shall be removed in accordance with SSPC-SP1 Solvent Cleaning.

**6.2** The primer shall be allowed at least a 2 – 4 hour cure period at 70 F to 80 F (21 C to 27 C) ambient temperature (longer at lower temperatures) before top coating. The ambient conditions at application shall be over 0 F (-18 C) and the surface temperature shall be at least 5 F (-15 C) above the dew point. Although calcium sulfonate/alkyd coatings will cure at very low temperatures, before application the surface must be free of ice or ice crystals associated with power washing and/or extreme temperature fluctuations. Do not paint during rain or snowy conditions.

**6.3** Mix paint by hand before application. No pigment settling should be apparent. Screen paint before applying, thin paint when necessary using only mineral spirits. For airless spray applications, solvent reduction is usually not needed. Thinning may be required for conventional air spray (usually 10 percent by volume) and will aid in flow and leveling when brushing or rolling primer over small areas.

**6.4** Apply by spray, brush or roller at least 4 mils (100  $\mu$ m) dry film thickness or approximately 6 mils (150  $\mu$ m) wet film thickness. The surface to be painted shall be dry, clean and free of any dust, dirt, oil or grease. The theoretical spreading rate for a 4 to 5 mil (100  $\mu$ m to 125  $\mu$ m) dry film is 250 square feet/US gallon (6 m<sup>2</sup>/L). Actual spreading rates can be significantly lower.

**7.0 Manufacturer and Brand Name Approval.** Prior to approval and use of the calcium sulfonate primer, the manufacturer shall submit to Project Operations a one-gallon (4 L) sample of the proposed material. The manufacturer shall also submit a certified test report from an approved independent laboratory showing specific test results for salt spray resistance of steel panels prepared and tested as specified in Sec 3.0.

**7.1 Final Acceptance.** Final acceptance of calcium sulfonate primer will be based on a manufacturer's certification submitted by the contractor to the engineer and upon results of tests made on samples of the material. Each lot will be sampled and tested prior to approval and use.

**7.1.1** Samples of any or all ingredients used in the manufacture of this paint may be requested by the purchaser and shall be supplied upon request, along with the supplier's name and identification for the material.